PORTABLE ELECTRONIC UNITS INCLUDING NOTEBOOK COMPUTERS, PDAS AND BATTERY OPERATED UNITS

This is a continuation divisional application whose entire disclosure is Ser. No. 08/832,923, filed Apr. 4, 1997 now U.S. Pat. No. 5,983,073, which is hereby incorporated by reference.

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to portable personal computer systems with external communication means, which can be used by an individual in both desktop and mobile environments. The computer system involves a relatively large color flat panel display, conventional microcomputer system, and a plurality of human interface means. In particular, it relates to a computer unit, having a light weight thin notebook-like computer structure that is capable of performing personal digital assistants (PDA) like functions and wireless external communications of voice, text, graphic and image data.

2. Description of Prior Art

There are several shortcomings with prior art notebook computers, PDAs and wireless telephone units. Notebook computers have a relatively large flat panel display device, a full alphanumeric keyboard and battery power. PDAs are small handheld units with a small LCD display, small key pad and touch pen. PDAs are designed to be placed in one's pocket or purse for maximum portability. A problem arises when customers desire large high resolution color display for both portable and desktop applications. To use a computer system for both portable and desktop uses, the customer must purchase multiple systems. The cost of color flat panels are still too expensive for most customers to by two display monitors, one display for desktop and one for the portable applications. Many customers require functionality of a desktop computer, notebook computer and PDA, but it is much too expensive to purchase multiple CPUs, displays, and keyboards.

U.S. Pat. No. 5,189,632 of Paajanen et al disclosed a hand held computer unit with an antenna and wireless RF communication capability, small flat panel display and a keyboard, in a partial clam shell type structure. However, they do not teach expandable hinge means, base station for handset relay functions, or cover latching function. U.S. Pat. No. 5,327,486 of Wolff et al teach a conventional laptop computer with antenna and RF communications to a radio network and local exchange telephone network. However, they fail to teach expandable hinge means, edge hinge means, handset means or base station relay functions. U.S. Pat. No. 5,459,458 of Richardson et al teach a virtual pager and data terminal system. However, they do not teach notebook like computers, base unit station or personal/PDA computing. U.S. Pat. No. 5,008,927 of Weiss et al teach a computer and telephone system with a display screen on a conventional telephone structure keyboard unit. However they fail to teach notebook like structure, wireless communication or handset relay functions. U.S. Pat. No. 5,196,993 of Herron et al teach a laptop computer with a removable flat panel display with built-in support feet for desktop support. However, they fail to teach expandable hinge means, exterior communications functions, cover latching functions or computer display assembly. U.S. Pat. No. 5,200,913 of Hawkins et al teach a laptop computer with flat panel display and pen input means. However, they fail to teach expandable hinge means, edge mounted hinge or latching functions.

Wireless hand held computer devices, such as cellular and Personal Communication System (PCS) telephones, have limited display capabilities. Piror art wireless computer units have display screens that are small (1.5–2.5" diameter), and they lack interactive capabilities to be successful for text, graphic and video applications. Some prior art notebook and laptop computers have integrated wireless communication means, but they are too large and bulky to be successful for in mobile uses. Prior art wireless devices do a poor job of providing voice, data and video communication functions. Typical wireless computer systems have display screens that are too small and have limited computing power. Prior art laptop and notebook computers are too heavy to carry for long periods. Inventions herein solve these problems by embodying a unique relatively thin notebook-like computer system that is capable of: being: (1) opened like a notebook, (2) quickly disassembled and re-assembled, (3) used for handset/earset communications relay operations and (4) used in a wide variety of computing, collaboration, communications and conferencing applications.

Inventions described herein are based on several Disclosure Documents submitted to the U.S. Pat. No. and Trademark Office, including Document Nos. 353691, 363753, 368165, and 377365. Inventions herein solve several prior art shortcomings, resulting in new modular integrated computer systems. The inventions as described below can be quickly configured to desktop, notebook, wireless and/or PDA embodiments. Thus, the user will be able to purchase a single computer system and pay much less money than conventional systems.

SUMMARY OF THE INVENTION

An object of this invention is to provide a modular multiple function display-computer system, where one can use the same relatively high resolution color flat panel display in both a desktop and mobile environments.

Another object of this invention is to provide means to reduce the cost to the customer of owning several expensive computer systems, by combining in one system the capability of performing both office desktop and portable/mobile computing and communications applications. Thus the invention herein saves the user the expense of purchasing separate computer systems for desktop uses, notebook computer uses, PCS uses and PDA uses.

Still another object of this invention involves means to quickly configure a modular notebook or PDA-like computer system into a plurality of system configurations for personal computer and wide area communication operations.

Another object of this invention is to provide for a relatively thin and light weight computer unit to be carried under one's arm in a notebook-like fashion, yet have sufficient computing power to execute a wide range of conventional computer and communications applications.

Still another object of this invention is to provide for bi-directional communication of voice, audio, text, graphics, image and/or video data to wide area communications networks where one or more users may communicate with other users with appropriate apparatus. The communication may realtime or store forward type communications.

Another object of this invention involves hardware and program software to control cellular or PCS communications, combined with a light weight mobile notebook or PDA like unit . The unit or system would act as a computing platform and base communications relay station. The system or unit may then relay voice and data to/from a